

a first substrate;
a first conductive body mechanically and electrically coupled to the first substrate;
a third conductive body mechanically and electrically coupled to the first substrate;
a nonsolderable and nonconductive material, wherein the nonsolderable and nonconductive material volumetrically surrounds and contacts a first portion of a surface of the first conductive body such that a second portion of the surface of the first conductive body is not contacted by the nonsolderable and nonconductive material, wherein the nonsolderable and nonconductive material volumetrically surrounds and contacts a first portion of a surface of the third conductive body such that a second portion of the surface of the third conductive body is not contacted by the nonsolderable and nonconductive material, and wherein the nonsolderable and nonconductive material is continuously distributed between the first conductive body and the third conductive body;

a second conductive body mechanically and electrically coupled to the first conductive body by surface adhesion at between a surface of the second conductive body and the second portion of the surface of the first conductive body, wherein a melting point of the second conductive body is less than a melting point of the first conductive body;

a fourth conductive body mechanically and electrically coupled to the third conductive body by surface adhesion between a surface of the fourth conductive body and the second portion of the surface of the third conductive body, wherein a melting point of the fourth conductive body is less than a melting point of the third conductive body; and

a second substrate mechanically and electrically coupled to both the second conductive body and the fourth conductive body.

2. The electrical structure of claim 1, wherein the first conductive body includes a solder bump.
3. The electrical structure of claim 2, wherein a height of the second conductive body is at least about 50% of a height of the solder bump.
4. The electrical structure of claim 2, wherein an area of the first portion of the surface of the first conductive body exceeds an area of the second portion of the surface of the first conductive body by a factor of at least about 10.
5. The electrical structure of claim 1, wherein a height of the second conductive body is at least about 3 mils.
6. The electrical structure of claim 1, wherein the nonsolderable and nonconductive material selected from the group consisting of a polyimide, a photosensitive resin, an epoxy, and a silicone.
7. The electrical structure of claim 1, further comprising an encapsulating material between the nonsolderable and nonconductive material and the second substrate, wherein the encapsulating material encapsulates the second conductive body.
8. The electrical structure of claim 7, wherein the encapsulating material includes epoxy anhydride with silica filler.

9. The electrical structure of claim 1, wherein the melting point of first conductive body exceeds the melting point of the second conductive body by no more than about 147 °C.
10. The electrical structure of claim 1, wherein the second conductive body includes lead and tin in a eutectic lead/tin ratio.
11. The electrical structure of claim 1, wherein the second conductive body includes lead and tin in lead/tin ratio that exceeds a eutectic lead/tin ratio.
12. The electrical structure of claim 1, wherein the second substrate includes an organic material.
13. The electrical structure of claim 1, wherein the second substrate includes a ceramic material.
14. The electrical structure of claim 1, further comprising a second nonsolderable and nonconductive coating material, wherein a first portion of a surface of the second conductive body is coated by the second nonsolderable and nonconductive coating material such that a second portion of the surface of the second conductive body is not contacted by the second nonsolderable and nonconductive coating material, and wherein the second portion of the surface of the second conductive body is mechanically and electrically coupled to the second portion of the surface of the first conductive body.

15. The electrical structure of claim 14, wherein the second nonsolderable and nonconductive coating material includes a cured light-sensitive resin.

16. The electrical structure of claim 1, wherein the first substrate includes a chip, and wherein the second substrate includes a chip carrier or a circuit card.

17. The electrical structure of claim 1, wherein the first substrate includes a chip or a module, and wherein the second substrate includes a circuit card.

18. (PREVIOUSLY AMENDED) An electrical structure, comprising:

a first substrate;

a first conductive body mechanically and electrically coupled to the first substrate;

a third conductive body mechanically and electrically coupled to the first substrate;

a nonsolderable and nonconductive material, wherein the nonsolderable and nonconductive material volumetrically surrounds and contacts a first portion of a surface of the first conductive body such that a second portion of the surface of the first conductive body is not contacted by the nonsolderable and nonconductive material, wherein the nonsolderable and nonconductive material volumetrically surrounds and contacts a first portion of a surface of the third conductive body such that a second portion of the surface of the third conductive body is not contacted by the nonsolderable and nonconductive material, and wherein the nonsolderable and nonconductive material is continuously distributed between the first conductive body and the third conductive body;

a second conductive body, wherein a melting point of the second conductive body is less than a melting point of the first conductive body;

means for mechanically and electrically coupling the second conductive body to the first conductive body by surface adhesion between a surface of the second conductive body and the second portion of the surface of the first conductive body;

a fourth conductive body, wherein a melting point of the fourth conductive body is less than a melting point of the third conductive body;

means for mechanically and electrically coupling the fourth conductive body to the third conductive body by surface adhesion between a surface of the fourth conductive body and the second portion of the surface of the third conductive body; and

a second substrate mechanically and electrically coupled to both the second conductive body and the fourth conductive body.

40. The electrical structure of claim 1, wherein the nonsolderable and nonconductive material is rigid at a temperature that is equal to the melting point of the first conductive body, and wherein the nonsolderable and nonconductive material is rigid at a temperature that is equal to the melting point of the third conductive body.

41. The electrical structure of claim 18, wherein the nonsolderable and nonconductive material is rigid at a temperature that is equal to the melting point of the first conductive body, and wherein the nonsolderable and nonconductive material is rigid at a temperature that is equal to the melting point of the third conductive body.